

## CLAIMS

What is claimed is:

1. A damper comprising:
  - a pressure tube forming a working chamber;
  - a gas disposed within said working chamber;
  - a first piston disposed within said working chamber, said first piston dividing said working chamber into an upper working chamber and a lower working chamber;
  - a system for selectively controlling pressure of said gas disposed within said working chamber.
2. The damper according to Claim 1 further comprising:
  - a valve for controlling flow of said gas through said first piston; and
  - a control unit in communication with said valve, said control unit controlling opening and closing of said valve.
3. The damper according to Claim 1 further comprising a piston rod connected to said first piston and extending through said working chamber, said system including selectively controlling a diameter of said piston rod.
4. The damper according to Claim 1 wherein said system comprises:

a source of pressurized gas in communication with said working chamber; and

a control unit for controlling flow of gas between said source and said working chamber.

5. The damper according to Claim 4 further comprising:

a valve for controlling flow of said gas through said first piston; and

a control unit in communication with said valve, said control unit controlling opening and closing of said valve.

6. The damper according to Claim 1 wherein said system comprises:

a reservoir of gas in communication with said working chamber;

a first valve disposed between said reservoir and said upper working chamber;

a second valve disposed between said reservoir and said lower working chamber; and

a control unit in communication with said first and second valves, said control unit controlling opening and closing of said first and second valves.

7. The damper according to Claim 6 further comprising:

a valve for controlling flow of said gas through said first piston; and

a control unit in communication with said valve, said control unit controlling opening and closing of said valve.

8. The damper according to Claim 6 further comprising a third valve disposed within said reservoir, said third valve dividing said reservoir into an upper reservoir and a lower reservoir, said first valve being in communication with said upper reservoir, said second valve being in communication with said lower reservoir, said third valve being in communication with said control unit, said control unit controlling opening and closing of said third valve.

9. The damper according to Claim 8 further comprising:  
a valve for controlling flow of said gas through said first piston; and  
a control unit in communication with said valve, said control unit controlling opening and closing of said valve.

10. The damper according to Claim 1 wherein said system comprises:  
a first reservoir of gas in communication with said upper working chamber;  
a first valve disposed between said first reservoir and said upper working chamber;  
a second reservoir of gas in communication with said lower working chamber;  
a second valve disposed between said second reservoir and said lower working chamber; and

a control unit in communication with said first and second valves,  
said control unit controlling opening and closing of said first and second valves.

11. The damper according to Claim 10 further comprising:  
a valve for controlling flow of said gas through said first piston; and  
a control unit in communication with said valve, said control unit  
controlling opening and closing of said valve.

12. The damper according to Claim 1 further comprising:  
a second piston disposed within said upper working chamber, said  
second piston defining an intermediate working chamber disposed between said  
upper and lower working chambers;  
a first valve for controlling flow of said gas through said first piston;  
a second valve for controlling flow of said gas through said second  
piston; and  
a control unit in communication with said first and second valves,  
said control unit controlling opening and closing of said first and second valves.

13. The damper according to Claim 1 wherein said system comprises  
an air spring having a pressurized gas in communication with said working  
chamber.

14. The damper according to Claim 13 further comprising:

a valve for controlling flow of said gas through said first piston; and  
a control unit in communication with said valve, said control unit  
controlling opening and closing of said valve.

15. The damper according to Claim 13 further comprising a booster  
disposed between said air spring and said working chamber.

16. The damper according to Claim 15 further comprising:  
a valve for controlling flow of said gas through said first piston; and  
a control unit in communication with said valve, said control unit  
controlling opening and closing of said valve.

17. The damper according to Claim 1 wherein said system comprises:  
a hydraulic actuator having a pressurized liquid;  
a converter in communication with said pressurized liquid of said  
hydraulic actuator and said working chamber.

18. The damper according to Claim 17 wherein said converter  
comprises a hydraulic cylinder and a gas cylinder.

19. The damper according to Claim 17 further comprising:  
a valve for controlling flow of said gas through said first piston; and

a control unit in communication with said valve, said control unit controlling opening and closing of said valve.

20. A damper comprising:

a pressure tube forming a working chamber;

a gas disposed within said working chamber;

a first piston disposed within said working chamber;

a second piston disposed within said working chamber, said first and second pistons dividing said working chamber into an upper working chamber, an intermediate working chamber and a lower working chamber;

a first valve for controlling the flow of said gas through said first piston;

a second valve for controlling flow of said gas through said second piston; and

a control unit in communication with said first and second valves, said control unit controlling opening and closing of said first and second valves.